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INDIA.

Report from Bombay—Port sanitary work during year 1903—Cholera, smallpox, and plague, 1903.

Acting Assistant Surgeon Hume reports, December 2, as follows:

[From the annual report of the port health officer, Bombay, 1903.]

As shown in the accompanying tabular statement there were 11,901 persons on incoming vessels whose bedding and clothing had to be disinfected. Of this number, 2,712 were crew and British troops arriving by transports; 729 were crew and passengers from East African ports; 6,466 were pilgrims returning from Mecca via Aden and other routes; and 1,994 were crew and passengers on other inward vessels.

I. Incoming vessels.—In accordance with the rules in force, only those incoming vessels were inspected which were actually infected or supposed to be infected with plague, cholera, smallpox, measles, or other infectious disease. All vessels arriving from East African ports were subjected to inspection of crew and passengers for detection of jigger and sleeping sickness. Of 23 vessels arriving with infectious disease actually on board, 5 were transports. Of the latter, 1 had two cases of plague, the vessel being infested with rats. One of the others had 9 cases of plague during the voyage from Zanzibar, 8 of these having died at sea. Scores of rats were found dead in the storerooms, and on arrival in port, not only was thorough fumigation done, but the stores were all destroyed.

No case of sleeping sickness was detected on any ship coming from East Africa.

II. Outgoing vessels.—The medical examination of the crew and passengers of all vessels and the disinfection of the clothing and bedding of the Asiatic and African members of the crew who were not officers, engineers, doctors, or Japanese, and of the deck, third, and fourth class passengers and Asiatic and African servants bound for ports out of India were carried out immediately before they left the port, as ordered by Government. The inspection of the crew and passengers was done by day, on shore, in specially arranged sheds, while disinfection was carried on at the disinfection station near the Prince's dock, or by means of the stove on the floating disinfection barge. The clothing, bedding, and boxes and other suspected articles were disinfected for 45,708 Asiatic and African members of crews and for 34,121 third and fourth class and deck passengers and pilgrims sailing on steamers for ports out of India. In addition disinfection was done for the kits of 3,950 crew and 508 passengers sailing in native sailing craft for ports out of India.

The disinfection of clothing and bedding of passengers and crew of vessels proceeding to ports out of India via Karachi was not carried out at Bombay, as the agents of the steamship companies preferred that it should be done at Karachi.

An apparatus for the formaldehyde-gas disinfection of boots and shoes of passengers and crew was supplied by the director of the Plague Research Laboratory. The apparatus is capable of taking 72 pairs of native shoes at one charge and requires twenty-five minutes for "ordinary" disinfection and ninety minutes for "absolute" disinfection. It takes nearly three hours for the ordinary disinfection and

nine hours for the absolute disinfection of 350 pairs of boots and shoes of the native crew of a large vessel. As it is difficult to give so much time to the disinfection of boots from one ship, the purchase of another boot and shoe disinfecter of an improved pattern and of at least double the capacity of the present one has been suggested to Government.

Experiments by Professor Haffkine showed that plague bacilli ceased to grow in an appropriate artificial medium after having been subjected for twenty-five minutes to formaldehyde gas derived from 5 paraform tabloids, but that they still had sufficient vitality left to enable them to recover their primitive vigor when injected into the body of a rat. In order to absolutely devitalize the plague bacillus and render it incapable of growth in the body of a very susceptible animal it was found necessary to increase the number of paraform tabloids to 60 and the time of exposure to one and a half hours.

In five instances during the year the crew and passengers of vessels which merely called at Bombay to land or embark passengers were exempt from inspection and disinfection. Such of the crew and passengers as embarked here were inspected by day on shore. New native members of crew and third, fourth, and deck-class passengers had their effects disinfected.

The agents, commanders, and nacodas (pilots) of all outgoing vessels, including native craft, with very few exceptions, were careful in paying attention to the sanitary state of their ships, and in almost every case cheerfully carried out the instructions and advice of the port health officer. The forecastles were limewashed, painted, or disinfected before departure. Native craft, the bilges of which were found to be dirty or to contain foul water, had to postpone their departure until they were thoroughly cleaned.

In every case where a vessel had cases of infectious disease among passengers or crew within ten days prior to their departure from Bombay, the bills of health stated the nature of such illness and the measures taken before the departure of the vessel to prevent the spread of the infection.

Six vessels were allowed to depart, conveying coffins containing the remains of certain persons who were certified to have died of non-infectious disease. The persons interested had the permission of their respective Governments to convey the corpses.

An inquiry was addressed to the various Bombay shipping agents as to whether any of their steamers which possessed a Bombay bill of health met with any vexatious delay owing to quarantine regulations at foreign ports. All but three of the agents replied that there had been no delay. In the three cases there was definite cause on three occasions for the special imposition of quarantine at foreign ports.

III. Infectious diseases on vessels in the harbor and docks.—As shown in the tabular statement, 32 vessels were found infected, mostly with cases of plague. Of 22 cases of plague, 20 were on vessels, and 2 were dock laborers whose corpses were found at the wharves. All infected vessels and wharves were thoroughly disinfected.

IV. Port observation camp.—The area of land occupied by the camp was reduced in June, 1903, from 12,555 square feet to 10,854 square feet, the monthly rental for which was about \$25. This camp received some of the persons who were rejected and sent there from the outward and inward inspections. They were kept under observation until their temperature fell to normal or until it was certain that they

were not suffering from plague. Of those who were sent to the camp from the outward inspections, 39 developed plague and were transferred to the Modikhana Hospital for treatment, the sheds they had occupied being then thoroughly disinfected and kept vacant for some days. Of the sweepers employed in the camp one developed plague and died in the Modikhana Hospital.

V. Disinfection of vessels and cargo.—In addition to the disinfection of vessels for infectious diseases where such disinfection was legally required, the disinfection barge was, in certain cases, placed at the disposal of naval vessels for the disinfection of clothing, etc., belonging to the crews of vessels on which there had been diseases which though infectious did not come under the infectious diseases act. In one case where a case of cholera occurred on a vessel the water tanks were disinfected with potassium permanganate solution before being refilled.

VI. General health of the shipping.—Eight hundred and sixty-seven persons connected with the shipping were admitted into hospitals during the year. No deaths occurred from the effects of cleaning bilges of ships.

Statement of the shipping of Bombay port and of sanitary work in connection therewith for the year ended December 31, 1903.

Vessels, including country craft.	Total number of vessels.	Vessels inspected.	Persons inspected, including crew on vessels.	Native crew and third-class passengers whose kit was disinfected.	Vessel disinfected.	Persons vaccinated.	Diseases and number of cases of each.					
							Plague.	Cholera.	Smallpox.	Measles.	Chicken pox.	Jigger.
Entered	34,351	102	22,272	11,901	23	.....	16	2	12	8	18	7
Left	34,369	14,463	697,050	84,287	.....	458	39	217	8	63	.....	..
In harbor during year	1,172	32	.....	32	.....	22	9	3	.....	1	.....	1
Total for 1903 ..	69,892	14,597	719,322	96,188	55	458	77	2	238	19	81	7
Total for 1902 ..	69,791	15,432	701,964	93,479	61	252	44	2	11	106	67	30

Cholera, smallpox, and plague in Bombay.—During the year there were 17 deaths from cholera, 1,477 from smallpox, and 20,788 from plague in Bombay City. Cholera was not epidemic at any time. From February to May there was a heavy mortality from smallpox, while plague was virulent from January to May.

Whenever plague developed among the crew or passengers who were not allowed to embark for ports out of India, Government was informed of the fact in order that the authorities at the vessel's next port of call might be given notice by telegraph. If plague occurred among those who were to have sailed for ports in India, the port health officer notified the authorities at the next port of call.

There is in port an apparatus for the disinfection of ship's holds and for the destruction of rats and cockroaches on board vessels by means of sulphur dioxide. This is owned by one of the shipping firms and is used by them whenever necessary.

Report from Calcutta—Fumigation of vessels—Cholera and plague mortality.

Acting Assistant Surgeon Eakins reports, December 1, as follows:

During the week ended November 26, 1904, bills of health were issued to steamship *Charles Tiberghien*, bound to Philadelphia and New York,